

REMARKS

Status of the Claims

Claims 57-60 and 62-71 are pending in the present application. Claims 53-56 and 88-90 have been withdrawn from consideration based on a restriction requirement, Claims 1-52 and 72-87 were previously canceled, and Claims 53-56 and 61 are canceled in the present amendment (subject to applicants' rights to file a divisional application directed to the non-elected claims during the pendency of the present application). Claims 57 and 71 have been amended to more clearly define the invention.

Claims Rejected under 35 U.S.C § 102

The Examiner has rejected Claim 71 as being anticipated by JP 63221187 (a Japanese patent application; hereafter referred to as JP '187), which discloses making and using a virgin synthetic fiber treated with titanium dioxide as an absorbent for oil. Claim 71 has been amended to recite providing a recycled delustered synthetic fiber based sorbent comprising a majority of recycled delustered synthetic fibers. Such a method distinguishes over the cited art for the following reasons.

The Examiner had noted that Mendes (U.S. Patent No. 5,779,392) discloses using virgin synthetic fibers as an absorbent material, and that JP '187 discloses using virgin *delustered* synthetic fibers as an absorbent material, where titanium dioxide is used as the delustering agent. Furthermore, the Examiner indicates that DE 3728899C (a German patent application, hereinafter referred to as DE '899) discloses generating a fibrous material from a waste stream (i.e., recycled fibers) and using the fibrous material as an absorbent. However, none of the references teach or suggest using a recycled delustered synthetic fiber based sorbent comprising a majority of recycled delustered synthetic fibers to absorb oil, nor is it apparent that that one of ordinary skill in the art would have found it obvious to modify the cited references to achieve an equivalent to the method recited in applicants' claims.

It must be recognized that the translated copy of DE '899 provides a clarification that the fibrous material disclosed by that reference comprises *paper fibers (i.e., organic fibers)*. DE '899 clearly teaches a method that requires separating paper from plastic in a mixed waste stream, so that the paper waste stream and the plastic waste stream can be used separately and to avoid contaminating the paper waste stream with undesired plastic waste. The separation of the paper waste stream from the plastic waste stream is achieved by selective comminuting (i.e., reducing to powder/pulverizing) and sifting using different size screens, so that the organic fiber material and the

1 plastic material are separated. DE '899 specifically describes that the paper is preferably reduced to
2 fibers about 3 to 5 mm in size, while the plastic is reduced to particles of about 30 mm in size. The
3 plastic is used by the plastic industry as a raw material for making other plastics (because it is
4 relatively pure plastic, with little organic fiber). Due to its high organic content, the separated fiber
5 material can be processed in a composting plant, dried for use as fuel, used as a raw material for
6 paper, or used as an absorbent. Significantly, DE '899 teaches it is undesirable for synthetics/plastics
7 to be incorporated into the fibrous material, since the synthetic material would make the fibrous
8 material ***unsuitable*** for use as a fuel, because such synthetic materials would release undesirable
9 amounts of hydrocarbons or hydrogen fluoride during combustion.

10 Thus, DE '899 teaches using a fibrous material comprising ***primarily organic material*** as an
11 absorbent, and separating synthetic plastic material from the organic material, so that the recycled
12 fibers include very little synthetic fibers. *DE '899 also teaches that synthetic materials should be*
13 *segregated for reuse by the plastics industry, and not reduced to a fiber for use as an absorbent.*
14 Applicants' method is specifically directed at using a recycled fibrous material that is ***primarily***
15 synthetic fiber. Clearly, DE '899 does not teach that synthetic fiber materials would make a desirable
16 sorbent or should be provided for any other purpose than use than to make plastics. To achieve an
17 equivalent of the approach claimed by applicants, the method disclosed by DE '899 must be modified
18 to move the synthetic/plastic material from the larger (30 mm verses 5 mm) waste stream intended
19 for recycling to the plastics industry into the fibrous waste stream intended for reuse as an sorbent, a
20 fuel, or a raw material for making paper. It should be noted that such a modification directly
21 contradicts the teachings of DE '899 and its intended purpose, since this reference teaches that
22 recycling of the plastic material (after it is separated from the paper waste stream) by the plastic
23 industry is preferable, and that the introduction of synthetic material into the fiber material would
24 render the fiber material *unsuitable for reuse as a fuel (and likely unsuitable for use as a raw material*
25 *for papermaking or for composting).* Such a modification of the process disclosed by DE '899 would
26 render the fibrous material *unsuitable for its intended use*, and as per MPEP 2143.01, obviousness
27 cannot be established by a modification if the *proposed modification would render the prior art*
28 *invention being modified unsatisfactory for its intended purpose.* While DE '899 is silent as to what
29 effect synthetic fibers might have on the ability of the fiber stream to be used as an absorbent, it is
30 significant that synthetic fibers are incompatible with three out of four uses identified by DE '899 for

1 the recycled fiber stream. It should also be recognized that DE '899 specifically teaches only using
2 recycled plastic material as an absorbent, considering its reuse by the plastic industry as a higher-
3 value use, and teaches that synthetic fibers are a contaminant in the organic fiber waste stream,
4 rendering the organic fiber waste stream unsuitable for use as a fuel. DE '899 simply does not teach
5 or suggest that any recycled and delustered synthetic fibers should be introduced into a fiber based
6 absorbent, and certainly does not teach that a fiber based sorbent should comprise a majority of
7 recycled delustered synthetic fibers (in fact, DE '899 teaches the exact opposite, that the fiber based
8 sorbent should comprise a majority of recycled *organic fibers and not synthetic fibers*).

9 What is missing from any of the references is a recognition that: (1) recycled delustered
10 synthetic fibers would make a good sorbent; and, (2) a superior sorbent can be achieved where the
11 majority of the fibers in the recycled sorbent comprised recycled delustered synthetic fibers (as
12 opposed to using primarily organic fibers, which DE '899 clearly teaches are a desirable sorbent
13 material). As noted in applicants' specification, a recycled synthetic material referred to as poly
14 shoddy is well-known in the art, and the volume of poly shoddy often exceeds any known use for the
15 material, such that rag mills sometimes have to pay to dispose of poly shoddy as a solid waste, as
16 opposed to finding any economic use for the material. Absolutely no evidence has been presented
17 teaching the use of poly shoddy, or any recycled delustered synthetic fibers, as an absorbent. If, as
18 the Examiner suggests, it would have been obvious to an artisan of ordinary skill in the art to use
19 recycled synthetic fibers as an absorbent, then rag mills should be using poly shoddy as an absorbent
20 instead of disposing of poly shoddy as solid waste.

21 Applicants have submitted concurrently herewith a declaration by Jerry Brownstein, who is
22 one of the joint inventors of the present application, providing objective evidence that the present
23 invention meets a long felt need by providing an additional use for recycled delustered synthetic fiber
24 scrap, which often must be disposed of as a solid waste because the volume of available delustered
25 synthetic fiber scrap exceeds the demand for that material. Note the current demand **does not** include
26 the use of synthetic fiber scrap as an absorbent. While the use of recycled delustered synthetic fibers
27 as an absorbent material superficially appears to be a simple idea, in reality, the idea is only obvious
28 when viewed through hindsight, which is an inappropriate basis for an obviousness type rejection (the
29 amendment of Claim 71 rendering the rejection of Claim 71 as anticipated under 35 U.S.C. § 102
30 moot, leaving only an obviousness type rejection).

1 Because the cited art provides no evidence that one of ordinary skill in the art would have
2 recognized the benefits of using recycled delustered synthetic fibers as an absorbent, or that a
3 superior absorbent would be achieved if the material content of recycled fibers comprises primarily
4 recycled delustered synthetic fibers (as opposed to the organic fibers disclosed by DE '899),
5 applicants respectfully submit that without the application of impermissible hindsight, an obviousness
6 rejection is not supported by the cited art. Accordingly, the rejection of Claim 71 should be
7 withdrawn.

8 Claims Rejected under 35 U.S.C § 103 over Mendes in View of JP '187 and DE '899

9 The Examiner has rejected Claims 57, 60, 61, 64-70, and 71 as being obvious over Mendes in
10 view of JP '187 and DE '899. The Examiner notes that Mendes discloses using virgin **organic** fibers
11 as an absorbent material, and that JP '187 discloses using virgin *delustered organic* fibers as an
12 absorbent material, where titanium dioxide is used as the delustering agent. Furthermore, the
13 Examiner notes that DE '899 discloses separating paper and plastic materials and shredding them to
14 form a fibrous material that can be used to absorb oil spills. The Examiner essentially argues that it
15 would have been obvious to one of ordinary skill in the art to use recycled fibers made using the
16 process disclosed by DE '899 having properties similar to those disclosed by Mendes and JP '187 to
17 absorb oil. Applicants respectfully disagree for the following reasons.

18 Applicants respectfully submit that the Examiner is incorrectly using the term organic to refer
19 to the fibers disclosed by Mendes and JP '187. To one of ordinary skill in the art (i.e., in the textile
20 arts), the term organic fiber would be considered to encompass natural fibers (i.e., fibers from plant
21 or animal sources), such as cotton, flax/linen, silk, wool, ramie, jute, sisal, kenaf, abaca, and pina
22 (pineapple fiber). In contrast, one of ordinary skill in the textile arts would recognize the term
23 synthetic fiber to encompass man-made fibers such as rayon, polyester, polypropylene, polyethylene,
24 and other man-made polymer based fibers. Mendes and JP '187 clearly refer to man-made polymer
25 based fibers, which are more properly referred to as synthetic fibers (as opposed to organic fibers).
26 This distinction is important, because as noted above, DE '899 discloses that recycled **organic** fibers
27 (*not recycled synthetic fibers*) can be beneficially employed as an absorbent for oil.

28 In fact, as discussed in detail above with respect to the rejection of Claim 71, DE '899
29 specifically teaches against incorporating synthetic materials into recycled organic fibers, because the
30 synthetic materials would prevent the organic fibers from being used as a fuel (and would likely

1 prevent the organic fibers from being able to be used as a composting material or for papermaking).
2 Modifying DE '899 to achieve a fiber stream comprising a majority of recycled delustered synthetic
3 fibers appears to be contrary to the direction provided by MPEP 2143.01, and thus, should not be
4 used to form the basis of an obviousness type rejection.

5 Even more significantly, as amended, independent Claims 57 and 71 each defines a *recycled*
6 *delustered synthetic fiber based sorbent comprising a majority of recycled delustered synthetic fibers*
7 (that is, the major component of the sorbent is recycled delustered synthetic fibers, as opposed to
8 natural fibers). The Examiner has not cited any reference that teaches or suggests a recycled sorbent
9 product should include *more* recycled synthetic fibers than recycled natural fibers. The only
10 reference cited by the Examiner that discloses the use of a recycled fiber as an absorbent specifically
11 teaches that the fibers in the sorbent should be controlled so that the sorbent includes primarily
12 recycled organic fibers, which specifically teaches away from a recycled fiber based sorbent
13 comprising a majority of recycled delustered synthetic fibers.

14 Claim 57 further recites that the sorbent comprises a minority of recycled natural fibers.
15 Significantly, none of the cited art teaches or suggests a sorbent comprising a mixture of natural and
16 synthetic fibers. Even if *arguendo* the disclosure of JP '187 would suggest to the artisan of ordinary
17 skill using recycled delustered synthetic fibers as absorbent in lieu of virgin delustered synthetic
18 fibers (and the accompanying declaration provides evidence as to why such a use *is not* obvious),
19 there is simply no evidence that would have been obvious to incorporate natural fibers as a minority
20 component of such an absorbent. The Examiner has not provided any reference disclosing an
21 absorbent comprising a mixture of synthetic and natural fibers, where more synthetic fibers are
22 employed than natural fibers.

23 Finally, as discussed below, applicants have provided evidence, in the form of a declaration
24 by Jerry Brownstein, that there exists in the textile industry a long felt need for alternative uses for
25 synthetic fabric scrap and synthetic fiber scrap. The industry term for such material is poly shoddy,
26 and a primary use for poly shoddy is to make non-woven sound deadening and insulating mats for
27 automobiles. Unfortunately, the volume of poly shoddy available frequently exceeds the demand for
28 products that can be made from poly shoddy. Thus, many rag mills and textile processors must pay
29 to dispose of poly shoddy as a solid waste. Poly shoddy comprises a majority of delustered synthetic
30 fibers. If, as the Examiner asserts, it truly would have been obvious to one of ordinary skill in the art

1 to use recycled delustered synthetic fibers as an absorbent, rag mills and textile processors would
2 have used or marketed poly shoddy as an absorbent, rather than paying to dispose of excess poly
3 shoddy as a solid waste. The fact that rag mills actually pay to dispose of poly shoddy (a material
4 that when shredded, can include majority of delustered synthetic fibers, depending on the type of
5 fabric waste available) as a solid waste strongly suggests that using poly shoddy as an absorbent is
6 not obvious.

7 The cited art (DE '899) teaches that synthetic materials should not be introduced into a
8 recycled fibrous material to be used as an absorbent. Secondary evidence has been submitted
9 indicating that delustered synthetic fiber scrap is considered to have little economic value, such that
10 producers of such material pay to dispose of that material as a solid waste. Clearly, for profit
11 enterprises would not pay to dispose of a material having economic value if they recognized that the
12 material had an economic value. Thus, it cannot be reasonably argued that one of ordinary skill in
13 textile arts/industries would recognize that delustered synthetic fiber scrap has utility or an economic
14 value when used as an absorbent. Accordingly, Claims 57 and 71 are patentable over the references
15 cited. Because dependent claims are patentable for at least the same reasons as the claims upon
16 which they depend, each claim dependent upon Claim 57 is patentable for the same reasons noted
17 above. Therefore, the rejection of Claims 57, 60, 61, 64-70, and 71 as being obvious in view of the
18 above noted combination of references should be withdrawn.

19 Claim 64 specifically recites the step of segregating synthetic fabric scrap to identify synthetic
20 fabric scrap comprising substantially more synthetic fiber than natural fiber, and then shredding only
21 the synthetic fabric scrap having the higher synthetic fiber content. Applicants have recognized that a
22 superior sorbent can be achieved when it has a higher percentage of delustered synthetic fiber as
23 compared to organic fibers. Waste synthetic fabric scrap can comprise materials such as clothing and
24 textile waste (such as draperies and carpets). Such textiles often comprise a mixture of different
25 fibers. For example, shirts are often made using the following types of fabrics: 100% cotton, 50%
26 cotton/50% polyester, 30% cotton/70% polyester, 100% silk, and 100% rayon. To achieve an
27 absorbent comprising a majority of delustered synthetic fibers (i.e., where the amount of synthetic
28 fibers is greater than the amount of natural fiber), only the 30% cotton/70% polyester, and 100%
29 rayon shirts should be processed (shredded into fiber). If many 100% rayon shirts were available and
30 only a few 50% cotton/50% polyester shirts were available, then all of the shirts could be processed

1 together to achieve an absorbent comprising a majority of delustered synthetic fibers (noting that
2 almost all synthetic fibers used in textile and clothing have been delustered to enhance the fiber's
3 appearance in a textile).

4 The cited art does not teach or suggest segregating synthetic fabrics to ensure that the fiber
5 mass resulting from shredding the segregated fabrics comprises a majority of delustered synthetic
6 fiber. DE '899 specifically teaches separating paper from plastic so only the paper is reduced to a
7 fibrous state, the plastic being broken into larger particles that are diverted to the plastics recycling
8 industry. Applicants respectfully request the Examiner to withdraw the rejection of Claim 64, or to
9 provide a reference that teaches an equivalent segregation process, along with an articulation of why
10 an artisan of ordinary skill would have been motivated to modify such a prior art segregation process
11 to achieve an equivalent to what applicants recited in Claim 64.

12 Claim 65 specifically recites that the production of the sorbent material should be controlled
13 such that the resulting sorbent (i.e., the mass) comprises about 90% synthetic fiber. The Examiner
14 has not cited any reference that teaches or suggests that a recycled delustered synthetic fiber based
15 sorbent should comprise about 90% synthetic fiber. Mendes and JP '187 disclose sorbent materials
16 comprising 100% virgin synthetic fibers. DE '899 discloses a sorbent material almost entirely
17 comprising recycled organic fibers, with almost no synthetic fibers. The Examiner has not provided
18 any reference that teaches or suggests a recycled sorbent material comprising about 90% synthetic
19 fibers, nor has the Examiner provided any evidence that such a sorbent material would have been
20 obvious to one of ordinary skill in the art. Applicants respectfully request the Examiner to withdraw
21 the rejection of Claim 65, or to provide a reference that teaches an equivalent recycled sorbent
22 material, or to provide an articulation of why an artisan of ordinary skill would have been motivated
23 to modify a prior art recycled sorbent material to achieve an equivalent of the material claimed by
24 applicants.

25 Claims 67 and 70 recite specific steps related to shredding a synthetic fabric that can lead to a
26 higher quality sorbent material. Based on applicants' understanding of the requirements of a
27 desirable absorbent material, it is important for the synthetic fabric to be reduced as much as possible
28 into synthetic fibers. "Flags" is an industry term for masses of fabric that have not been reduced to
29 fiber. Claim 67 specifically recites the step of reducing the number of flags present in the shredded
30 mass. Claim 70 specifically recites the step of removing larger pieces of synthetic fabric scrap and

1 shredding the remaining synthetic fabric scrap (because the larger pieces of synthetic fabric scrap will
2 not be reduced to fiber). Each of these steps represents a departure from the manner in which rag
3 mills generally reduce fabric scrap to fiber. When rag mills reduce fabric scrap to fiber, the
4 processing is performed either to produce poly shoddy that will be used to manufacture non-woven
5 blankets to be used as sound deadening material for automobiles and/or to reduce the volume of scrap
6 material that will be disposed of as a solid waste. The presence of flags and larger pieces of scrap
7 that have not been reduced into fiber does not present a significant problem for either of these uses of
8 poly shoddy. However, applicants have recognized that the presence of flags and large pieces of scrap
9 that have not been reduced to fiber will significantly reduce the quality of the sorbent material.
10 The Examiner has not provided any evidence that it would have been obvious to one of ordinary skill
11 in the art to implement the recited steps when processing synthetic fabric scrap to achieve a higher
12 quality recycled synthetic fiber based sorbent material. Applicants respectfully request the Examiner
13 to withdraw the rejection of Claims 67 and 70, or to provide a reference that teaches that the amount
14 of flags and large pieces of synthetic fabric that have not been reduced into fiber should be reduced
15 when synthetic fabric scrap is being processed to provide a sorbent material comprising a majority of
16 recycled synthetic fibers.

17 Claims Rejected under 35 U.S.C § 103 over Mendes in View of JP '187, DE '899 and Mesek

18 The Examiner has rejected Claims 58, 59, and 63 as being obvious over Mendes in view of
19 JP '187 and DE '899, further in view out of Mesek (U.S. Patent No. 4,045,833). The Examiner notes
20 that the combination of Mendes in view of JP '187 and further in view of DE '899 does not teach
21 employing both long and short fibers in a non-woven fabric to enhance the strength structural
22 stability and integrity of the fabric, but that Mesek discloses using long and short fibers in such a
23 manner. The Examiner concludes it would have been obvious to one of ordinary skill in the art to
24 combine the teachings of Mendes and JP '187 with DE '899 and Mesek to achieve an equivalent of
25 what applicants recite in these claims. Applicants respectfully disagree for the following reasons.

26 Claims 58, 59, and 63 are each ultimately dependent upon Claim 57. As discussed above in
27 detail, the combination of Mendes, JP '187, and DE '899 does not support a case of obviousness, and
28 Mesek provides no additional disclosure that would support a case of obviousness. Claim 57 is
29 therefore patentable over these references. Because dependent claims are patentable for at least the
30 same reasons as the claims upon which they depend, each claimed dependent upon Claim 57 is

1 patentable for the same reasons noted above. Accordingly, the rejection of Claims 58, 59, and 63 are
2 as being obvious in view of the above noted combination of references should be withdrawn.

3 Secondary Considerations in Regard to the Rejections under 35 U.S.C. § 103

4 As indicated in MPEP § 2141, objective evidence of secondary considerations, such as
5 unexpected results, commercial success, long felt need, failure of others, copying by others, licensing,
6 and skepticism of experts are relevant to the issue of obviousness and must be considered in every
7 case in which they are present. When evidence of any of these secondary considerations is
8 submitted, the Examiner must evaluate the evidence.

9 In addition to the above discussion, which points out that the cited art fails to support a case of
10 obviousness, applicants have submitted concurrently herewith a declaration by Jerry Brownstein that
11 provides objective evidence that the present invention meets a long felt need. The cited art shows
12 that using both delustered and non-delustered virgin synthetic fibers as absorbents for oil is known.
13 The cited art also shows that using *organic* (or natural) recycled fibers as an absorbent for oil is
14 known. Applicants' declaration provides evidence that the textile industry regularly disposes of
15 synthetic fabric/synthetic fibers as solid waste because the known economic uses for such material,
16 primarily the manufacture of non-woven sound deadening mats for automobiles, exceeds the supply
17 of such material. Clearly, for profit industries do not dispose of materials as solid waste if they are
18 aware of that materials have an economic value. If, as asserted by the Examiner, it would have been
19 obvious to one of ordinary skill in the textile arts (i.e., persons in the textile industry who routinely
20 pay to dispose of synthetic fabric scrap as a solid waste) to process synthetic fabric scrap to provide a
21 sorbent material comprising a majority of recycled to delustered synthetic fibers, then there would be
22 no logical or economic reason for the textile industry to pay to dispose of synthetic fabric scrap as a
23 solid waste. While *in hindsight*, applicants' use of synthetic fabric scrap to produce a sorbent
24 material comprising a majority of recycled delustered synthetic fibers might seem obvious, if the
25 impermissible lens of hindsight is removed, there is no justification that such a use is obvious, and the
26 evidence (in the form of the secondary considerations noted above) clearly indicates that such a use is
27 not obvious (otherwise the textile industry would have adopted such a use long ago, to save the
28 expense of paying to dispose of the material that applicants use as a valued resource). Accordingly,
29 the obviousness rejections presented in the current Office Action should be withdrawn.

In view of the amendments and the remarks submitted above, it is clear that all of the claims in the application define patentable subject matter that is neither anticipated nor obvious in view of the prior art cited. For this reason, the Examiner is requested to issue the present application without delay. If there are any questions that might be addressed by a telephone interview, the Examiner is invited to telephone applicants' undersigned attorney, at the number listed below.

Respectfully submitted,

/mike king/
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MCK/RMA:cai

Enclosure:
Declaration